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ABSTRACT

In developing a model for institutional assessment, John Wood Community College (JWCC), in Quincy, Illinois, decided to use student learning as the foundation of evaluation, as opposed to the activities and services offered by the college. This performance-based approach to institutional assessment was then expanded to reshape the process by which courses and curricula were designed. The curriculum model subsequently adopted by JWCC utilized a PC-based software package for instructional revision and was based on a performance-based instructional theory developed by the Community College Education Program at Virginia Tech which divides the development of instruction into the distinct areas of planning, delivery, and evaluation. The software package leads instructors through the process of identifying course content goals, creating lesson plans by identifying teaching practices appropriate to selected learning theories, and creating exams that specifically focus on the selected content goals. Concepts underlying JWCC's computerized pedagogical model include: (1) student knowledge and skills required to exit a course are communicated in advance; (2) what is taught and learned is systematically identified, aiding assessment efforts; (3) teachers are centrally involved in instructional planning; (4) the student is the target in course construction; (5) content goals are carefully analyzed by instructors; (6) planning is carefully aligned with delivery; (7) each content goal requires approximately 3 hours of student learning time; and (8) decisions about course content form part of a data-set for describing and evaluating the instructional process. (KP)

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# Developing a Computerized Performance Based Curriculum Model

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## DEVELOPING A COMPUTERIZED PERFORMANCE BASED

## CURRICULUM MODEL

Assessment has become a major focus on many college campuses, leaving many educators to wonder how they can document and defend the practices and services that they are providing students. Institutions are being asked, or along some continuum are being forced, to examine how they know that they are meeting their missions. This focus is being thrust upon higher education by legislative bodies with public interest in accountability, as well as by accrediting associations.

Colleges are being required to demonstrate that their mission statements focus on student learning as an outcome and that the outcome is actually being achieved, and at a certain degree. For a number of reasons, many educators perceived this intervention as one that did not supply appropriate levels of direction and, in some cases, support. Although this description was certainly the case at the outset at John Wood Community College, the perceived vagueness has now taken shape.

In the development phase of the assessment model, the JWCC administration and faculty made a deliberate decision to use individual student learning as the foundation of the examination as opposed to all of the activities and services that the college offers. This focus on student learning and, therefore, the levels of achievement were to be assessed in the overall context of the institutions effectiveness--thereby reflecting mission fulfillment. As it turns out, this approach is consistent with accreditation mandates that tie institutional effectiveness to student achievement.

The North Central Association of Colleges and Schools, for example, highlights 10 elements upon which institutional assessment plans should be built. Accordingly, the assessment effort should: flow from the institution's mission; have a conceptual framework; have faculty ownership/responsibility; have institution-wide support; use multiple measures; provide feedback to students and the institution; be cost effective; not restrict or inhibit the goals of access, equity, and diversity as established b the institution; lead to improvement; and include a process for evaluating the assessment program.

At the time the national assessment effort was taking shape, JWCC was expanding its performance-based approach to instruction. This included a reshaping of the process by which courses and curricula were being designed. While the college has had a long standing commitment to competency-based instruction, much of that was tied to how the course was delivered rather than how the course was conceived, planned, and then delivered and measured.

In this reshaping effort, the faculty and staff became aware of both a product and a process to assist instructional revision. The product was a computer software package developed on a pedagogically sound process. This process flowed from a concerted effort by the faculty in making conscious decisions about what it was that they wanted the student to be able to do after each course objective had been taught.

The timing of these two separate but related activities could not have been better. The more the college dealt with the issue of assessment, the more it confirmed our belief that there was a strong connection between student performance/achievement and the curriculum development process we were considering and beginning to implement.

The administration and faculty felt that this curriculum development approach, in a tightly documented way, could help the college demonstrate the connection between what the expected performance was through the design of the course's objectives. In addition, it would provide a source against which the student could be measured up to the faculty member's predetermined performance objective expectations.

In the efforts that were undertaken, the mission statement was recognized as the driving force. It was the umbrella that covered all the other elements of the model. The college's mission statement was the standard by which institutional effectiveness was designed and measured. Likewise, the mission statement set the parameters for the institution and, in the case of an educational entity, what it taught. The philosophy, institutional goals, general education outcomes and departmental outcomes were noted as supportive outgrowths of the institutional mission. Each of these elements should be able to be directly connected to some portion of the institutional mission. Likewise, the content goals, performance-based objectives, activities, and assessment should be tightly connected, almost like links on a chain, with its mission. Theoretically, if this is the case, then each course taught--down to the individual content goals, should have elements that can be measured against the institution's mission.

The course development model adopted by John Wood Community College was designed to counter some of these circumstances while still utilizing the talents and skills of adjunct faculty. The computerized approach was integrated into the curriculum development and revision processes as a means of ensuring standardization of content and, thereby affording the necessary documentation throughout the curriculum.

The specific model was based on a performance-based instructional theory developed by Dan Vogler of the Community College Education Program at Virginia Tech. This approach divides the development of instruction into three stages: planning, delivery, and evaluation. Planning includes the tasks involved in identifying, selecting, and determining the course content and the desired level of student proficiency as communicated via performance objectives. Delivery consists of tieing the individual performance objectives to theoretically-based instructional activities. Evaluation is the process of determining students' mastery of the course content, as specified by the criteria included in the performance objectives, and ultimately by the students' course grade.

More specifically, the "CourseBuilding" component is the first step in the curriculum development process. This PC-based software package leads instructors through the process of identifying content goals for their courses. A format is presented for defining content goals, such that each content goal is specified as an observable action. The instructor identifies the domain, frequency, difficulty, and purpose of the content goal. The resulting performance objective defines the action to be performed, the standards of quality, quantity, efficiency, and durability to which it will be performed, and the conditions under which the performance will take place. These content goals and performance objectives are summarized in a structured and uniform course syllabus, which the instructor creates on-line, including point assignment and letter grading. The resulting syllabus represents a comprehensive course document for distribution to students, advisors, four-year institutions for articulation purposes, employers, and accrediting bodies.

The content goals created by the instructor using the planning component are integrated into the second computerized package, "LessonBuilding." This assists instructors in creating lesson plans or self-paced modules for each content goal in a course. The software helps the instructor identify which teaching practices are most supportive to the theory of learning selected. The instructor identifies what actions he or she will take in the classroom, which additional activities the student will complete, and in what out-of-class assignments the student will engage. The instructor also specifies requirements for pre-testing, post-testing, and exemption-testing-if any.

The resulting package is a lesson plan specifying how an instructor will address a particular content goal. The lesson plan can be shared when content is taught in more than one course and is a significant help to a substitute, adjunct, or new instructor.

After content goals have been created and lesson plans defined, the final step is to measure the students' mastery of goals. A third software package, ExamBuilding," is used for this purpose. This guides instructors to create better exams that specifically focus on the content goals that were delivered in the instructional process. This allows the instructors to construct a bank of examination items, each linked to a content goal. The instructor builds an exam by defining the content goals to be covered and selecting from the items linked to those goals. Prompts are provided that suggest appropriate assessment techniques to use in accordance with the defined goal.

This particular computerized pedagogical model stems from eight basic concepts that individually support standardization and uniform instructional delivery. They are:

1. The knowledge, skills, and affect required to exit a course are communicated in advance. This produces a "no surprise" course.

2. Content of the course drives the model. The result is that what is taught and what is learned are systematically identified. This, in turn, becomes the basis for subsequent delivery and evaluation decisions.

3. The faculty member that delivers and evaluates the instruction is centrally involved in the instructional planning. This maximizes the chances for implementation of the curriculum.

4. The student is the target for content planning, delivery, and evaluation of instruction. Extreme variations among students render planning, delivery, and evaluation critical.

5. Each content goal is analyzed by the instructor for domain, level, frequency, difficulty, purpose, and preferred sequence. This creates a check and balance system to determine "what, why, where, and when" content is included or excluded from a course.

6. Content action verbs are carefully selected and manipulated to ensure that planning, delivery, and evaluation of instruction are aligned. As a result, what is planned is taught, and what is taught is evaluated.

7. Each content goal requires approximately three hours of learning time investment by the student. The primary consequences of this concept include: (a) creation of a direct match between the content goals and performance objectives; (b) creation of a content goals and the lecture; and (c) creation of a position that facilities sharing instructional materials and evaluation items.

8. The micro-decisions made about course content create a macro-based data set that can be used to describe and prescribe the instructional process. These same data can be aggregated by program, institution, and state. This enables instructors to share instructional planning data, instructional materials, and test items.

The described concepts are inextricably linked across planning, delivery, and evaluation of instruction. In a broader sense, the adopted computerized model allows instructors to directly relate the mission statements of the institution to the individual course objectives. In turn, the individual performance instructor's course data can be aggregated to form a multiple course information database to provide effective and efficient service to many instructors responsible for teaching the same or similar content. The leverage of these data can maximize outcomes and returns on instructional investments.

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